

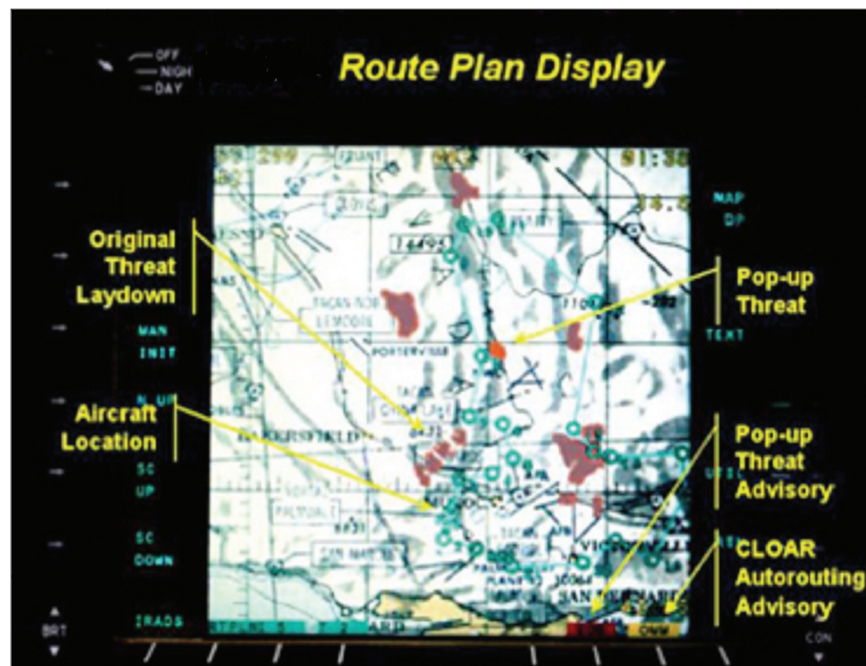


Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

FIGHTER AIRCRAFT EVALUATE REAL-TIME INFORMATION CAPABILITY



The Integrated Real-time information into the cockpit (RTIC)/Real-time information out of the cockpit (RTOC) for Combat Aircraft (IRRCA) program made F-117 history when the aircraft sent its first-ever attack sequence images via satellite data link during IRRCA Phase II flight testing. Personnel from the Sensors Directorate, Lockheed Martin Aeronautical Systems, and the F-117 Combined Test Force in Palmdale, California, conducted the flight testing.

The ability to send images of an attack sequence to a command and control element within minutes of the attack allows commanders to assess the effectiveness of an attack and rapidly redirect an attack against the target, if necessary. This capability is critical for time-critical targeting operations.



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Accomplishment

The IRRCA program developed an onboard mission manager (OMM) that facilitates the transfer of RTIC and RTOC. The OMM also contained a modified version of the common low-observable auto-router (CLOAR) that allows a dynamic, signature-managed replan of the F-117's flight path in response to target retasking messages and pop-up threats. The IRRCA avionics configuration also supports sending selected images with mission reports via satellite data links that provide beyond line-of-sight communication with the aircraft.

Background

The directorate initiated the IRRCA program in 1998 and restructured it in January 2000, adding extended hot mock-up (HMU) testing. HMU testing, completed in June 2001, allowed for additional configuration testing and consisted of mission updates, text, and image messages sent from the Raytheon, Ft. Wayne, Indiana location to the F-117A HMU facility in Palmdale, California, over ultra high frequency demand assigned multiple access satellite communications (UHF DAMA SATCOM).

The multi-mission advanced tactical terminal received threat updates transmitted on the national threat broadcasting system and passed the threat updates to the OMM. The CLOAR replanned the route, which was dependent upon the mission updates and threat information passed to the OMM. During the attack phase of the mission, the HMU captured a series of images from the infrared targeting system and sent them via UHF DAMA SATCOM to a simulated air operations center.

Sensors
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-08)